

VOLUME 1, ISSUE 2

Winter 2018

# ARLABnetwork

## Southeast Regional Newsletter

Welcome to the second issue of the Southeast Regional Antibiotic Resistance Lab Network Newsletter. This newsletter will be distributed on a quarterly basis to all SE AR Lab Network sentinel sites, public health epidemiologists and labs. Articles will include regional updates, lab protocols, surveillance updates, and staff introductions. Please email [ARLN.Health@TN.gov](mailto:ARLN.Health@TN.gov) if you are interested in submitting an article for the next newsletter. We are excited to use this newsletter as a means for the SE region to stay updated and connected!

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## In today's news

### *Notes from the Field: Pan-Resistant New Delhi Metallo-Beta-Lactamase-Producing Klebsiella pneumoniae* — Washoe County, Nevada, 2016<sup>1</sup>

In August 2016, Nevada public health officials were notified of a patient at an acute care hospital with carbapenem-resistant Enterobacteriaceae (CRE) that showed resistance to all available antimicrobials. CRE *Klebsiella pneumoniae* was isolated from a wound specimen collected in August 2016. The Centers for Disease Control and Prevention (CDC) confirmed this isolate to have New Delhi metallo-beta-lactamase (NDM) gene. This patient had multiple prior hospitalizations outside of the US, predominantly in India. Their last hospitalization in India was in June 2016. The patient died in September 2016 of septic shock while admitted to an acute care hospital.

Antimicrobial susceptibility testing (AST) showed the isolate was resistant to 26 antibiotics which including aminoglycosides and polymyxins. Intermediate resistance was shown to tigecycline and a high minimum inhibitory concentration (MIC) to colistin was observed. CDC determined the isolate was negative for the *mcr-1* gene, which is a plasmid that confers resistance to colistin. A point prevalence survey (PPS) was conducted on patients admitted to the same unit as the index patient. Fortunately, the PPS did not identify any additional CRE cases.

This case highlights the importance of surveillance and laboratory testing. Isolates that are resistant to all antimicrobials are rare and extremely difficult to treat. Identification of these organisms is critical in order to implement appropriate infection prevention precautions to contain transmission. Gathering patient history in regards to international travel and healthcare exposure is useful because they can act as risk factors for having a drug-resistant organism.

<sup>1</sup>Chen L, Todd R, Kiehlbauch J, Walters M, Kallen A. Notes from the Field: Pan-Resistant New Delhi Metallo-Beta-Lactamase-Producing *Klebsiella pneumoniae* — Washoe County, Nevada, 2016. MMWR Morb Mortal Wkly Rep 2017;66:33. DOI: <http://dx.doi.org/10.15585/mmwr.mm6601a7>

## Cepheid Infinity

The SE ARLN lab recently acquired a Cepheid Infinity.

It allows loading of an infinite amount of closed-container specimens on the conveyor for holding until they are ready to be tested. The instrument replaces a Gene-X-Pert, which had a capacity of testing 16 specimens at one time. The Infinity doubles the capacity and can test 32 specimens at one time. It is a semi-closed system which, after detection, disposes of the isolates with no user intervention. This is used to identify resistance mechanisms during colonization screening.



## Candida Updates

### ◇ ***C. auris* Colonization Testing**

The SE ARLN Lab now has a 7 day turn-around time (TAT) for *C. auris* colonization screening. Previously, the TAT for this testing was 14 days. The current testing continues to be culture based. The *C. auris* PCR test will be available later in 2019, and will reduce the TAT further.

### ◇ **Reminder**

Any *Candida spp.* isolates (except *C. albicans*) or any unidentified yeast isolate from any specimen source can be submitted to the SE ARLN Lab for identification/confirmation and susceptibility testing.

## *Neisseria gonorrhoeae* (GC)

Tennessee Department of Health Division Of Laboratory Services is also one of four *Neisseria gonorrhoeae* (GC) Labs responsible for the testing of antimicrobial susceptibility of GC. Only two of the five states in the southeast region are served.

- ◇ **GISP** - Gonococcal Isolate Surveillance Project was established in 1986 to monitor antimicrobial susceptibility trends of *Neisseria gonorrhoeae* in the US. This focused on gonococcal trends in male patients presenting with symptomatic urethritis, urethral gonorrhea each month visiting STD clinics. Although the first 25 males seen with GC were selected, at present, some sites may submit hundreds more isolates monthly from approximately 25 – 30 clinical sites. The overall goal is for each site to provide at least 300 isolates per year.
- ◇ **SURRG** – Strengthening U.S. Response to Resistant Gonorrhea was established in 2016 from a growing concern about antibiotic resistance. It supports the national target of maintaining prevalence of ceftriaxone resistance in GC of less than 2 % through 2020. To enhance local capacity to rapidly detect and conduct gonorrhea case investigations, identify partnership networks and transmission dynamics of gonorrhea, and halt the spread of identified resistant infections. There are presently 8 SURRG project areas that include select cities in Washington, Wisconsin, New York City, North Carolina, Indiana, Colorado, California and Hawaii.
- ◇ **eGISP** – a surveillance system of expanded populations; includes extra-genital gonorrhea in male and female patients was established in 2017; it was designed to describe the diversity of GC, phenotypically and genotypically. Extra-genital sites include rectal and pharyngeal specimens and first 25 women undergoing pelvic exams who are likely to be infected with *N. gonorrhoeae*, cervicitis, known contacts to gonorrhea or those with known positive NAAT returning for treatment. These also include possible *Neisseria meningitidis* specimens.

Forty nine sites submit isolates to four GC ARLN Laboratories. TN receives isolates from Alabama, Florida, Illinois, Indiana, Minnesota, New York and North Carolina. Isolates are submitted for monthly susceptibility testing. Antibiotic susceptibility test results are reported to the local sites and CDC. Further characterization of select isolates is determined by Whole Genome Sequencing.

## HP Printer Update

Division of Lab Services of TN Department of Health, as Southeast AR Lab Network (Antibiotic Resistance Lab Network) regional lab, is one of the four funded pilot labs to provide new drug susceptibility testing of beta-lactam resistant *Enterobacteriaceae*. On Nov 13<sup>th</sup>, 2018, TN lab had a HP D300e Digital Dispenser Training with CDC representatives, and HP senior applications specialists.

**Goals** of using this adapted inkjet printing technology to dispense drug into microtiter trays with the D300e system are:

- ⇒ Prepare reference BMD panels for drug MIC testing
- ⇒ Perform susceptibility testing to improve care for patients infected with pan-resistant or nearly pan-resistant *Enterobacteriaceae*
- ⇒ Help ensure new drugs are used appropriately
- ⇒ Provide results within 3 days of sample receipt

Healthcare facilities and providers will request this testing from their AR Lab Network regional laboratory. Hospital laboratories will be encouraged to submit *Enterobacteriaceae* isolates that:

- ⇒ Test non-susceptible to all beta-lactams, including either ceftazidime-avibactam or meropenem-vaborbactam. These isolates may be metallo-beta-lactamase producing isolates with few effective treatment options.

OR

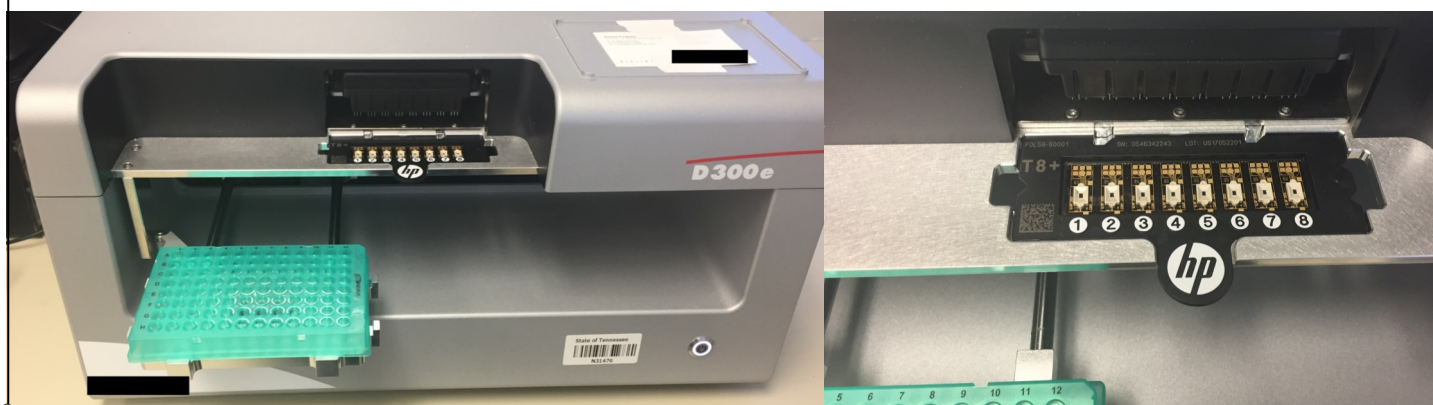
- ⇒ *Enterobacteriaceae* that are found to possess NDM, VIM, or IMP using a molecular test.

For initial testing, the following drugs/drug combinations will be used: Ceftazidime/avibactam; Aztreonam; Aztreonam/avibactam; and Aztreonam/ceftazidime/avibactam.

As of Dec 7, 2018, TN public health lab has completed the validation of this new assay and details regards test requests and isolate submissions will soon be announced.

Xiaorong Qian, Ph.D.

Ref: CDC AR Laboratory Network: New Drug Susceptibility Test of beta-lactam Resistance *Enterobacteriaceae*. Oct 2nd, 2018





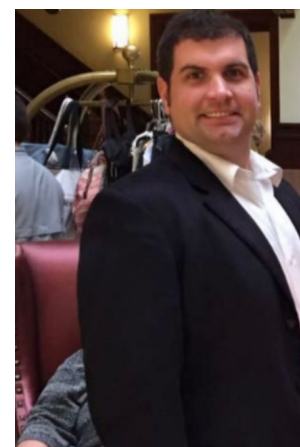
## Meet the staff

Tracy McLemore is the AR Lab Network manager at the Tennessee Department of Health. His role is primarily to integrate AR lab network activities and improve operational functionality between the entities in the Southeast Region. A native of central Florida, Tracy has been with the State of Tennessee almost two years after a varied career in microbiology, private industry and lab administration. He was involved in the first installation of molecular testing equipment in the Nashville area almost 20 years ago and has watched this area of the laboratory grow with particular interest. He is an avid Florida Gators fan who enjoys spending time with his four granddaughters.



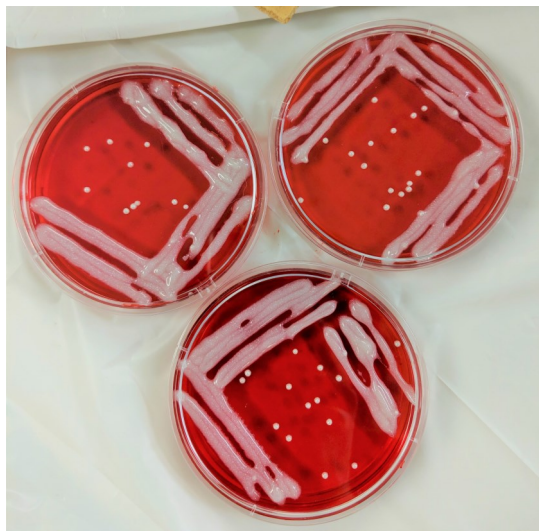
Albert Burks is the AR Lab Network supervisor for the Tennessee Department of Health Laboratory. He assumed this role in September of 2018. He has worked for the Laboratory since February 2017.

Albert has worked in various roles through his career in healthcare from laboratory settings to Emergency medical services and Nursing. He received his Bachelors of science degree from Austin Peay State University. He is also a Registered Nurse and a licensed paramedic. He enjoys outdoor activities and spending time with his family.



## Laboratory Treats

The Healthcare Associated Infections and Antimicrobial Resistance (HAI/AR) Program at TDH made lab-themed treats for an office Halloween Party. Treats included blood agar jello plates, "Graham" stain crackers, test tubes full of candy, and specimen cup brownies and apple juice.



## Quarterly Recipe Share

### Spicy Moroccan Chickpea Soup (Vegan)

#### Ingredients

- 2 Tbsp olive oil
- 2 Tbsp flour
- 4 cloves of garlic, crushed or minced
- 1 Tbsp tomato paste\*
- 4 tsp salt
- 1 1/2 Tbsp ground cumin
- 2 tsp paprika
- 1 Tbsp cinnamon
- 1 tsp turmeric
- 1/4 or 1/2 tsp cayenne (depending on desired spice level)
- Black pepper to taste
- 1/2 cup dry white wine
- 1 yellow onion, roughly chopped
- 2 large carrots, peeled and chopped
- 2 cans chickpeas, drained and rinsed
- 4 cups vegetable broth
- 1 pint cherry tomatoes



#### Instructions

1. Blend onion, carrots, chickpeas, and tomatoes with vegetable broth. (If needed, blend half now and blend the other half after step 4)
2. In a large soup pot, heat olive oil on medium heat until shimmering. Slowly add flour, making a roux. Add garlic, tomato paste, salt, cumin, paprika, cinnamon, turmeric, black pepper, and cayenne pepper. Stir.
3. Add white wine and reduce.
4. Slowly add blended ingredients to the pot, making sure to stir. (If blending in batches, blend the remaining vegetables and broth now, then add to pot)
5. Simmer for 45 minutes, stirring occasionally.
6. Once soup is finished simmering, add lemon zest and lemon juice.



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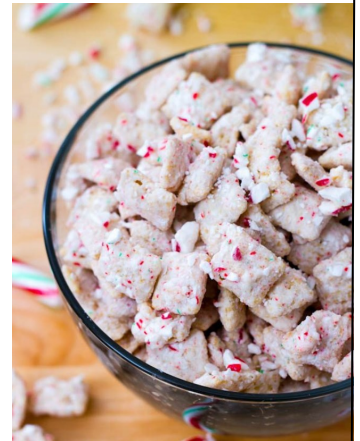
## Peppermint Crunch Puppy Chow

### Ingredients:

5 cups Rice Chex cereal  
10 ounces melting white chocolate  
OR vanilla flavored Almond Bark  
1 cup crushed candy canes  
1 cup confectioners' sugar

### Instructions:

- 1) Pour the cereal into a large bowl.  
Melt white chocolate/almond  
bark according to the package  
directions. Pour melted chocolate over cereal, stirring and  
folding until the cereal is completely covered. Fold in the  
crushed candy canes.
- 2) Pour the confectioners' sugar into a zipped-top bag. Pour  
the chocolate covered cereal/candy canes in next. Seal  
the bag or container and shake until all the cereal is  
coated with the confectioners' sugar mixture.
- 3) Discard excess powder. Store at room temperature up to  
2 weeks, if it lasts that long!



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## Sudoku

